



UC

Assurance Plan

For

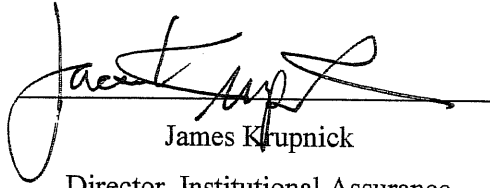
Lawrence Berkeley National Laboratory

LBNL/ PUB –5520

July 2007

REVIEW AND APPROVAL

The Department of Energy, University of California Contract Assurance Council, and Lawrence Berkeley National Laboratory Office of Institutional Assurance approve the UC Assurance Plan.

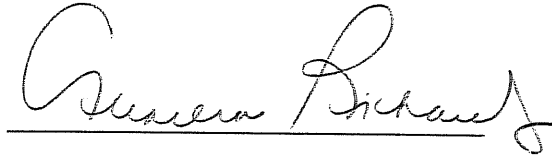


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OBJECTIVES AND APPLICABILITY

The University of California (UC) Assurance Plan is a set of operating systems used to assure that Lawrence Berkeley National Laboratory (LBNL) organizations achieve reliable and safe performance in their work activities, in compliance with regulatory and contractual requirements. These systems apply to all Lab staff, participating guests, students, and subcontractors. The Assurance Plan is the program document of the Office of Institutional Assurance. LBNL's assurance that the public, workers, the environment, and national assets are adequately protected and that business operations are performed effectively is based on the effective use of assessment, performance metrics, and corrective action management described in the Assurance Plan. Through these tools, LBNL will meet requirements effectively and efficiently, identify and resolve problems and performance trends before they become significant issues, integrate and align work based on risk and performance, and eliminate duplications. The success of the Assurance Program will be directly reflected in LBNL's ability to self-identify and correct Lab problems and issues.

The Assurance Plan is designed to fulfill four main objectives:

- Detail the reporting relationship between LBNL and University of California Office of the President (UCOP), as implemented by the Office of Institutional Assurance and the LBNL Contract Assurance Council.
- Describe the process for assuring acceptable performance of LBNL Operations and Financial Management divisions, departments, and programs to the Department of Energy (DOE), LBNL management and the University of California Office of the President (UCOP).
- Describe the methodology to promote continuous improvement of LBNL operating and infrastructure programs and systems.
- Conform to the requirements of the DOE- UC contract for management of LBNL (No. DE-AC02-05CH11231) and DOE Order 226.1, Implementation of Department of Energy Oversight Policy.

The Assurance Plan applies to all LBNL Operations, Business, and Financial Management programs and systems as implemented in all Laboratory organizations, including Science divisions. For example, the Assurance Program includes monitoring and evaluation of financial, ES&H, and property management activities implemented in Science divisions as well as in Operations divisions.

The Assurance Plan implements a charter for the LBNL Contract Assurance Council. UCOP established this committee to assure that LBNL fulfills all requirements of the DOE-UC contract for management of LBNL (No. DE-AC02-05CH11231).

Assurance Program

The LBNL Assurance Program provides for the effective oversight of the Lab's management systems and operating processes to ensure that compliance, operational support for science, best management practices, and continuous improvement are achieved. Such assurance gives confidence to senior Laboratory management, the Department of Energy (DOE) and the LBNL

Contract Assurance Council that the expectations and strategic goals of DOE- UC contract No. DE-AC02-05CH11231 (C31) for management of LBNL is met. The Assurance Program is implemented by the Office of Contract Assurance (OCA). This office:

1. Provides a structure for oversight and assurance activities.
2. Implements and maintains an institutional performance assurance program. This program is composed of the following elements:
 - a. Performance metrics. Establish and maintain metrics to monitor DOE contract performance evaluation measures, as well as Laboratory and Division-specific performance of vital operations. Metrics will be linked to the DOE mission and used to monitor internal controls, trends, and progress in fulfilling Laboratory mission.
 - b. Assessments and Reviews. Develop comprehensive assessment programs for Laboratory operations; including self-assessments, peer reviews, and technical reviews. Manage self-assessments, including: developing performance metrics and review protocols with appropriate organization and program management, maintaining the assessment process, and reviewing and validating performance results.
 - c. Corrective actions. Establish a corrective action management program for all Laboratory operations that allows for tracking and managing corrective actions that result from assessment findings. These data will be entered into a single Corrective Action Tracking System (CATS) in order to ensure documentation and validation that corrective actions are both properly implemented and effective.
 - d. Continuous improvement and lessons learned. Develop and maintain a Laboratory-wide lessons-learned program to provide a systemic approach towards continuous improvement. Evaluate lessons learned and distribute them to appropriate parties, including Divisions, the Laboratory, and the DOE complex. Ensure lessons learned are integrated into work practices.
3. Serves as the Independent Point of Contact for evaluating nuclear safety Price-Anderson Amendments Act (PAAA) issues and deficiencies, including tracking these issues to resolution.
4. Investigates incidents of significant concern to Laboratory management. Performs root cause analysis of these incidents and reports results to Laboratory and Division management.
5. Regularly reports to Laboratory management, LBNL Contract Assurance Council, and DOE the status, trends, and issues arising from oversight and assurance activities.
6. In conjunction with DOE, UCOP, and Lab Directorate, coordinates review and implementation of emerging DOE rules, orders, directives, and similar policy documents. Interacts with DOE, LBNL, and UCOP staff on applicability of DOE policy and rules to the Laboratory.

The Office of Contract Assurance is an internal assurance organization, reporting to the Office of Institutional Assurance and authorized to have unrestricted access to personnel, records, and other information sources necessary to carry out its duties. OCA staff possesses the requisite experience, training, and skills to manage the LBNL Assurance Program. Appropriate qualification standards are maintained in staff position descriptions.

At the direction of the Laboratory Directorate, the Office of Contract Assurance coordinates independent third party reviews in areas of business, finance, operations, ES&H, and other selected areas. The Office provides information and support to the LBNL Contract Assurance Council established by the University of California Office of the President.

ORGANIZATION AND GOVERNANCE

1.1 Corporate Organization

UCOP, LBNL senior management, and LBNL line management and staff manage LBNL operations, processes, and project activities to achieve the Laboratory's goals and mission. The University of California creates the framework for LBNL senior management to deploy resources effectively so that LBNL managers and staff can execute performance successfully. Using information provided from LBNL senior management and LBNL line managers and staff, the Office of Institutional Assurance provides assurance to UCOP, LBNL management, and DOE that the management systems and process controls are effective and efficient.

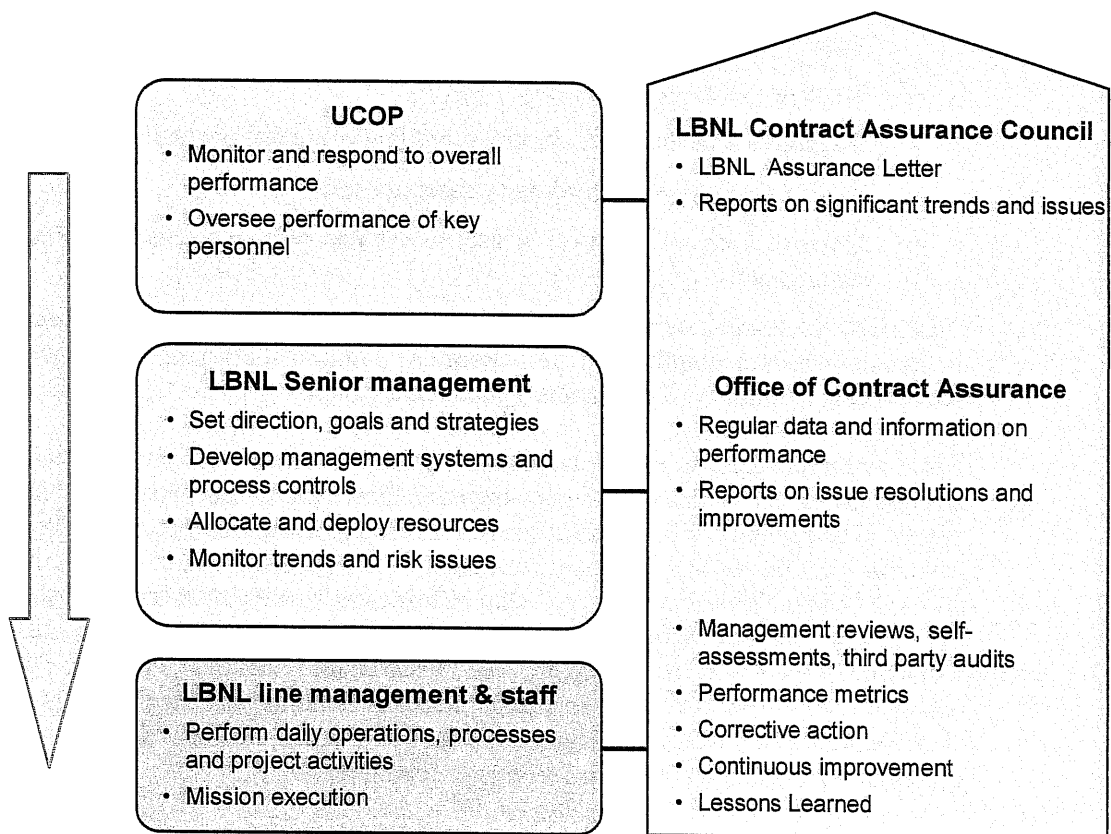


Figure 1: Integration of Assurance with UCOP, LBNL Management and LBNL line management and staff

UCOP oversees LBNL operations in a responsive, anticipatory, proactive, mission enabling, and cost effective manner that is valued by the DOE Office of Science. The UC oversight organization spans all corporate levels of the University including the Regents, the UC President and Vice Presidents, and the Laboratory Director. The oversight function is performed by the LBNL Contract Assurance Council.

LBNL Contract Assurance Council

The Lawrence Berkeley National Laboratory (LBNL) Contract Assurance Council advises the Vice President for Laboratory Management (VPLM) on Laboratory issues needing management attention. It reports through the VPLM to the UC President. The Council acts within the chain of line management as the means by which the VPLM ensures and coordinates the application of University resources and actions required for full compliance with all aspects of the LBNL contract. The Council leverages expertise in the functional organizations of the UC Office of the President to support the effective and efficient operation of the Laboratory.

The Council has responsibilities to determine:

- Adequacy of Laboratory policies, systems, procedures, and practices to protect DOE and UC assets
- Adequacy of performance measures and metrics
- Efficiency and effectiveness of systems
- Progress of management initiatives and improvements proposed by UC
- Areas that will require third-party assessments
- Resources required from UC to assist the Laboratory in meeting its mission and requirements.

The LBNL Contract Assurance Council will have transparent access to all relevant management information through the Laboratory's contract performance review process, the Berkeley Laboratory Information System, and CATS.

The Council includes an appropriate mix of senior UC officers and external members who are appointed by the VPLM, who serves as the Council Chair, with the concurrence of the UC President. The UC Office of the President members are the Senior Vice President for Business and Finance; the Senior Vice President for University Affairs; the General Counsel/Vice President for Legal Affairs; the Vice Provost for Research; the UC Auditor; the Chair of the UC Academic Council; the Associate Vice President for Laboratory Operations; the Associate Vice President for Laboratory Programs; the Associate Vice President for Human Resources and Benefits; and the Deputy Associate Vice President for Laboratory Operations. The UC Council members have oversight and interface responsibilities for their laboratory counterparts.

The Council also includes two distinguished external members who provide additional perspective in assuring the administrative, operational, and programmatic performance of the Laboratory. The external members include scientists of national stature in areas germane to LBNL research, and operational experts in areas critical to the Laboratory. The terms of the external members are renewable and staggered.

The Council will meet monthly to review and discuss management and status reports, and will receive a quarterly assurance briefing addressing areas of the Council's responsibilities. The Executive Director for Business and Finance in the Office of Laboratory Management will provide staff support for Council meetings and interface with the LBNL Office of Institutional Assurance to ensure timeliness and adequacy of reporting.

LBNL Management and Staff

LBNL senior management sets the strategic direction, deploys resources, and develops management systems and process controls. In fulfilling its duties, LBNL Management has the responsibility of mission accomplishment, program development, Laboratory stewardship and operational excellence. Its primary functions include:

- Establish detailed strategies and implementation plans required to achieve DOE and UCOP performance expectations and to guide the work of the Laboratory.
- Develop and implement management systems and process controls capable of assuring operation within acceptable risks.
- Take appropriate actions to improve Laboratory performance based on self-assessment results and feedback received from the LBNL Contract Assurance Council.

LBNL line management and staff conduct the daily work, processes, and activities of the Laboratory using management systems and process controls to achieve the objectives set by LBNL Management. LBNL organizations must:

- Describe their organizational structure, functional responsibilities, levels of authority, and interfaces.
- Plan for their functions and activities to deliver safe, reliable, and quality products and services.
- Hire and retain staff proficient to perform their functions and activities.

Line managers and staff regularly evaluate performance with assessment tools developed by both line organizations and the Office of Contract Assurance. These self-assessments are conducted to assure that performance is effective and meets regulatory and contractual requirements. Significant findings and risks are reported to LBNL Management and the Office of Institutional Assurance and tracked for corrective actions.

The Office of Contract Assurance (OCA) assesses the effectiveness of management systems and process controls using a variety of assessment processes and tools. These include self-assessments, peer reviews, internal audits, external reviews, and oversight studies. OCA evaluates performance trends, monitors improvements, and reports risk issues to LBNL management and UCOP. A single Lab-wide database system (CATS) tracks program and performance deficiencies and non-conformances and provides exception reports to LBNL management when corrective actions are not completed in a timely manner. The Office of Contract Assurance works with managers, supervisors and staff to establish performance metrics, develop assessment protocols, implement corrective actions and improvements, and disseminate lessons learned. OCA has the added responsibility of providing the LBNL Management and UCOP with the objective evidence of significant risk issues and verification of the process improvements.

ASSURANCE PROCESS

2.1 Assurance Process

Assurance activities confirm that performance is effective and conforms with regulatory and contractual requirements. These activities also identify any unacceptable risks and institute corrective measures. The strategic output is to provide UCOP and LBNL management with regular data and information on performance trends and significant or emerging risks. The assurance process flow is as follows:

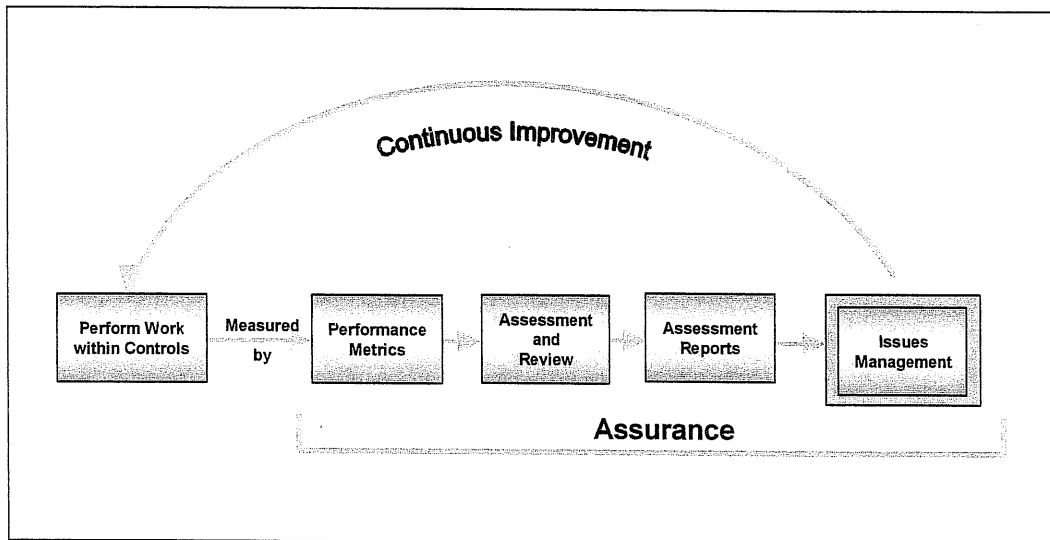


Figure 2: Assurance Process Flow

Lab organizations must regularly evaluate and improve the performance of their units. LBNL organizations implement the assurance process by:

- Conducting self-assessments
- Conducting management assessments
- Conducting independent assessments
- Correcting deficiencies and improving processes, products, and services.

The Office of Institutional Assurance will use assurance process results to verify that:

- Laboratory policies, procedures, and practices are adequate to protect DOE and UC assets.
- Laboratory management systems and process controls are working as intended with regard to managing the Laboratory's risk while accomplishing its mission.

- Data and information on the status, progress, and resolution of performance issues are readily available through web-based reports and printed materials to all interested parties in UCOP, LBNL senior management, and LBNL line management and staff.

2.2 Performance Metrics

Performance metrics are a vital tool in quantifying performance and provide a basis for many LBNL assessment processes. Performance metrics serve as organizational benchmarks and effectively and efficiently communicate Laboratory organizations' progress in meeting mission requirements and standards to DOE, UCOP, and Laboratory management. When feasible, the LBNL assurance process aligns these metrics to avoid redundant efforts in satisfying the various assessment processes. LBNL uses both leading measures with predictive qualities to drive future performance and lagging measures to assess past performance.

2.2.1 Contract 31 Performance Evaluation and Measurement Plan

LBNL works with DOE and UCOP to plan, coordinate and oversee the DOE Office of Science laboratory Performance Evaluation and Measurement Plan (PEMP). Contract performance metrics are used to monitor and evaluate LBNL work performance against established annual goals and DOE requirements. The Office of Institutional Assurance assists in creating these performance measures and monitoring performance. OIA manages scheduling, data gathering, reporting, and analysis. Functional managers from UCOP, BSO, and LBNL meet quarterly to review performance against the PEMP measures and also discuss issues not explicitly addressed in the PEMP. Internal Audit validates the results of the appraisal reports prepared by each functional area.

2.2.2 Contract 31 PEMP Protocol Documents

In support of the Contract 31 PEMP, many LBNL Operations organizations develop balanced scorecards or performance assessment manuals that include more detailed performance measures than the C31 PEMP. These measures are closely aligned with the Operations functions' work activities and are accurate performance indicators. The balanced scorecard and performance assessment manual measures are combined at the functional level and rolled-up to indicate performance in the C31 PEMP.

2.2.3 Environment Safety & Health Division Self-Assessment Performance

Environment Safety & Health (ES&H) Division Self-Assessment performance metrics are developed to demonstrate each Laboratory division's effectiveness in implementing, maintaining, and improving Integrated Safety Management (ISM) in their operations and activities. The metrics are based on the five core functions and seven guiding principles of ISM. These metrics are developed annually to promote improvement, respond to deficiencies noted in previous ES&H assessments, and address DOE and Laboratory management concerns. Staff who manage the respective division self-assessment programs are required to complete LBNL ES&H Self-Assessment training.

2.3 Assessment

Assessments are the primary mechanism for assuring that LBNL organizations and activities function effectively, progress toward strategic goals, and satisfy Laboratory mission needs. Three forms of assessment are performed at LBNL:

- Self- assessments conducted by senior managers, line managers, and staff
- Internal reviews performed by LBNL organizations independent of the assessed programs
- External reviews performed by parties independent of LBNL.

These assessments incorporate differing areas of focus and multiple perspectives to produce complementary forms of assurance to Lab management and UCOP. The scope, frequency, and methodology of assessments are specified in Operations functions' program documents. These program documents include:

- Environment Safety & Health Self-Assessment Program (PUB-5344)
- Master Emergency Program Plan (PUB-533)
- Site Security Plan
- Integrated Safeguards and Security Management Plan
- Cyber Security Program Plan
- Operating and Quality Management Plan (PUB-3111)

2.3.1 Self-Assessment

Self-assessments are internal assessments of the LBNL functions performed by functional managers, line managers (including division safety coordinators), and staff. Operations functions develop scope, criteria, and methodology based on the primary risks inherent in work activities. These functions implement assessment protocol that assess operational effectiveness, fulfilling LBNL management goals, and meeting contractual obligations.

As part of self-assessment, LBNL functional managers must regularly assess the performance of their organizations and functions to determine how well objectives and goals are met. Assessments by line managers focus on identifying and resolving both singular and systematic management issues and problems that may hinder the organization in achieving its scientific and operational objectives. Performance metrics may serve as the basis for self-assessment activities. Management should also consider any previous findings from external audits, internal reviews, and regulatory inspections when performing assessments. Managers should assess their processes for the following:

- Planning
- Organizational interfaces (internal and external to the organization)
- Integration of management systems (e.g., safety, security, quality, project)
- Organizational effectiveness
- Contractual and regulatory compliance
- Use of performance metrics

- Training and qualifications
- Issues management (tracking, implementation, effectiveness)
- Supervisory oversight and support

Assessments should involve direct observation of work so that the manager is aware of the interactions at a work location. The observations can be supplemented with worker and customer interviews, safety and performance documentation reviews, and drills or exercises. Assessments should also address adequacy of worker feedback mechanisms, such as job hazard analysis, safety meetings, and post-job reviews.

The results of management assessments must be documented and used for continuous improvement. Assessment reports should evaluate performance against appropriate performance measures, opportunities for improvement, and noteworthy practices. Supporting documentation can include minutes of staff and operations meetings, progress reports, job expectation evaluations, inspection reports, and self-assessment reports.

2.3.2 Internal Review

Internal reviews assess operational effectiveness and programmatic adherence to missions, goals, and objectives. Internal reviews are independent assessments performed by technically and programmatically knowledgeable personnel within LBNL who are free of direct responsibility in the areas they assess. Personnel that lead internal reviews will be trained to perform these reviews through: 1) guidance and experience participating in similar reviews; and/or 2) formal subject matter training or formal review/auditing training.

LBNL organizations that routinely conduct internal reviews include the Office of Contract Assurance; the Project Management Office; the Environment, Health and Safety Division; Internal Audit Services; and the Safety Review Committee. Each assessment organization has established protocols for conducting assessments and providing feedback to the assessed organizations. The type and frequency of independent assessments are based on the status, complexity, risk, and importance of the activities or processes being assessed.

Examples of independent assessments include:

- Evaluating work performance and process effectiveness,
- Evaluating compliance to the management system requirements (e.g. regulatory requirements and program document standards),
- Validating performance in the C31 PEMP,
- Identifying abnormal performance and potential problems,
- Identifying noteworthy practices and opportunities for improvement,
- Verifying satisfactory resolutions of reported problems, and
- Evaluating project management practices.

Results of independent assessments provide an objective form of feedback to Lab management that is useful in confirming acceptable performance and identifying improvement opportunities. The results should be documented in an assessment report.

2.3.3 External Review

External reviews are assessments performed by parties independent of LBNL. These reviews may be performed by regulatory agencies, DOE representatives, peers within the DOE complex, or experts from private industry. Reviews may be initiated by external regulatory agencies intent on ensuring that LBNL operations are compliant with federal, state, and local regulations. DOE headquarters and Berkeley Site Office representatives may also perform reviews to evaluate operations and assess implementation of applicable DOE orders and directives.

Peer reviews, another form of external assessment, may assure the quality of research, operations, and project management. These reviews are performed by peers from other DOE complex sites, universities, and private industry. Peer reviews are often used to assess operational effectiveness, programmatic adherence to missions, goals, and objectives; and regulatory compliance.

The assessed organization is responsible for responding to external review findings. This includes tracking deficiencies, implementing corrective actions, and communicating opportunities for improvement and noteworthy practices as appropriate. The Office of Institutional Assurance will coordinate this process.

2.4 Reporting

2.4.1 Assurance Reports

Contract Assurance Council Reports

The Office of Institutional Assurance (OIA) prepares oral and written reports for the LBNL Contract Assurance Council. The Council holds monthly meetings to discuss LBNL performance and assurance issues. Quarterly Council meetings are longer than regular monthly meetings, allowing for more comprehensive discussion of Laboratory assurance.

OIA reports detail:

- Status and development of the assurance process
- Significant issues and risks detected through the assurance process
- Events and conditions that result in reports to external agencies, including PAAA worker health and safety and nuclear safety Non-compliance Tracking System (NTS) and Occurrence Reporting and Processing System (ORPS) reports

- Significant lesson learned resulting from deficiencies and noteworthy practices
- Corrective action status of findings from external assessments and significant findings from self-assessments
- Status of management initiatives proposed by UC
- Annual Assessment Reports

Annual ES&H Assessment Report

The Office of Institutional Assurance prepares an annual ES&H Self-Assessment report summarizing the results of ES&H self-assessments. Each report will assess the Lab's ES&H operational effectiveness, and progress in fulfilling LBNL management priorities and meeting contractual obligations. The reports will summarize results of the various assessments during the performance year, including self-assessment and any internal assessment. Each report will describe institutional and divisional findings and noteworthy practices and propose opportunities for improvement.

The annual ES&H assessment reports are prepared for Laboratory management, the assessed divisions, and the LBNL Contract Assurance Council. Report results, including institutional opportunities for improvement and corresponding corrective actions, are discussed annually with senior Lab management and provided to DOE Berkeley Site Office.

OIA Risk Registry

The Office of Institutional Assurance maintains a Risk Registry to monitor potential threats to Laboratory mission and reputation, regulatory and contractual compliance, and worker safety and environmental stewardship. Items added to the Registry are tracked until resolution.

The OIA Risk Registry is updated and reviewed with senior LBNL and BSO management at least monthly. The Risk Registry is also reviewed with the UC Contract Assurance Council at least quarterly.

The primary mechanism for updating the Risk Registry is quarterly PEMP performance review and update meetings of UCOP, BSO, and LBNL functional managers. However, significant issues identified through assurance activities and regular meetings of UCOP, BSO, and LBNL functional managers are also tracked on the Registry.

2.4.2 Annual Contract Self-Appraisal Report

UCOP submits an annual Contract 31 Self-Appraisal Report on behalf of LBNL to BSO. This document reports LBNL's success in achieving the five Management and Operations Goals and Objectives prescribed by the Office of Science in the PEMP. The report describes performance against the Measures and Targets agreed upon by BSO, UCOP, and LBNL functional managers. The report also incorporates performance outside of the specific Measures and Targets, including identification of key achievements and

opportunities for improvement. The five Management and Operations goals are:

- Provide Sound and Competent Leadership and Stewardship of the Laboratory
- Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health, and Environmental Protection
- Deliver Efficient, Effective, and Responsive Business Systems and Human Resources that Enable the Successful Achievement of Laboratory Missions
- Sustain Excellence in Operating, Maintaining, and Renewing the Facility and Infrastructure Portfolio to Meet Laboratory Needs
- Sustain and Enhance the Effectiveness of Integrated Safeguards and Security Management (ISSM) and Emergency Management Systems

2.4.3 Event Reporting and Analysis

Adverse ES&H events are reported to LBNL and BSO management and DOE headquarters through multiple vehicles, depending on the type of event. Reporting avenues include:

Supervisor Accident Analysis Reports

Detailed procedures for reviewing and reporting minor and serious injuries are described in PUB-3000, Chapter 5. Minor and serious injuries are investigated by division line management (the injured employee's supervisor), and the respective division safety coordinator and EHS Division liaison. The division safety coordinator is responsible for submitting a completed Supervisor Accident Analysis Report (SAAR) to the EH&S Division within seven calendar days after the employee reports the injury. Trained investigators analyze all OSHA recordable injuries to determine root causes. The EH&S Division periodically trends these injuries and posts the results on the EH&S Division home page.

10CFR 835 PAAA (Nuclear Safety) Reporting

Procedures for analysis and determination of PAAA nuclear safety NTS reportability are defined in the LBNL Manual for PAAA Program Communications, Oversight, and Reporting Processes. Matters with potential PAAA relevance that are not reported on the PAAA NTS are recorded on an Internal Log that is reviewed approximately monthly with the DOE Berkeley Site Office. In addition, OCA performs a quarterly analysis of the previous 12 months of PAAA Nuclear Safety Internal Log entries. When a trend is detected, a PAAA NTS report is filed.

10CFR 851 PAAA (Worker Health and Safety) Reporting

Procedures for analysis and determination of 10CFR 851 NTS reportability are defined in the LBNL Manual for 10 CFR 851 Worker Safety & Health Program Noncompliance Screening & Reporting Process. For each 10CFR 851 noncompliance, a review team of LBNL and BSO staff determine NTS reportability. Additionally, CATS entries and related 10CFR 851

noncompliances are reviewed for possible NTS reporting as programmatic or repetitive deficiencies.

Occurrence Reporting and Processing Systems (ORPS)

Requirements and procedures for analyzing and reporting occurrences that meet ORPS thresholds are described in the LBNL ORPS Manual (LBID-2488). Consistent with DOE Guide 231.1-1 and the LBNL ORPS Manual, OCA performs quarterly trending analysis of reportable occurrences and PAAA NTS entries (both nuclear safety and worker safety and health) during a 12-month period. Results of the analysis are reported to BSO and LBNL management.

2.4.4 Worker Feedback

LBNL staff should provide regular, informal feedback to their supervisors. In addition, LBNL has established formal mechanisms to solicit feedback from workers. These formal feedback mechanisms include:

LBNL Safety Review Committee (SRC)

The SRC performs research for and makes recommendations to the Laboratory Director on the development and implementation of LBNL Environment, Safety & Health (ES&H) policy, guidelines, codes and regulatory interpretation. It conducts reviews of division ES&H programs, special safety problems, and provides recommendations for possible solutions; as requested by the Laboratory Director. The SRC includes one representative from each Laboratory division.

Division Safety Coordinators' Committee

The Division Safety Coordinators' Committee is composed of all division safety coordinators. (Each division has a safety coordinator.) The committee meets monthly with senior EH&S Division staff to discuss safety concerns and provide feedback from Lab staff on ES&H conditions, policies, and practices.

Division Safety Committees

Each Laboratory division has an active safety committee (or equivalent) that includes staff representatives. Committees meet as prescribed in each Division ISM Plan. A key function of each division safety committee is to provide a mechanism for staff feedback.

Operations Suggestion Box

Laboratory Operations has established an online mechanism for workers to provide improvement suggestions.

EHS Suggestion Box

The EH&S Division has established an online mechanism for workers to provide improvement suggestions.

EthicsLine

The Laboratory has an independent service to provide workers with a means of providing anonymous information about suspected improprieties. The following mechanisms are available:

- EthicsLine (available 24 hours)
- LBNL Internal Audit Hotline (Improper Activities)
- LBNL Human Resources (Special Complaint Procedures Information)
- DOE Inspector General Hotline
- University-wide Hotline
- Bureau of State Audits

CONTINUOUS IMPROVEMENT

3.1 Continuous Improvement

Continuous improvement is a combination of systems improvement and issues identification and management that: (1) uses feedback information to improve processes, products, and services; (2) prevents or minimizes operational problems (i.e. contractual, legal, financial, and ES&H deficiencies); and (3) when discovered, corrects any problems that occur.

- Continuous improvement involves: Identifying program or performance deficiencies. Reviewing information and data on processes, products, or services to identify adverse conditions
- Identifying corrective actions to mitigate or resolve issues
- Analyzing deficiencies and adverse conditions and determining the causes
- Segregating the processes, products, or services if the adverse conditions may lead to significant consequences
- Implementing corrective actions
- Verifying that corrective actions were implemented
- Determining corrective action effectiveness
- Developing and disseminating lessons learned and best practices within specific Laboratory organizations, Lab-wide, and/or to the DOE complex

This process should be part of the normal operation of all LBNL working groups and should be documented in the normal operational records and reports (e.g., meeting minutes, progress and activity reports, readiness reviews, and assessment and inspection reports). Significant deficiencies may require separate reports that detail root causes and measures implemented to prevent recurrence.

3.2 Issues Management

The Lawrence Berkeley National Laboratory (LBNL) Issues Management Program encompasses the continuous monitoring of work programs, performance and safety to promptly identify issues to:

- Determine risk and significance,
- Identify causes, and
- Develop and effectively implement corrective actions to ensure successful resolution and prevent the same or similar problems from occurring.

Findings are addressed on a graded approach. Depending on significance, findings may merit corrective action plan development, root cause analysis, extent of condition review, and effectiveness review. Examples of deficiencies that require these processes include:

- Significant adverse conditions,
- Price Anderson Amendment Act Non-Compliance Tracking System reportable deficiencies (both nuclear safety and worker health and safety),
- DOE Order 231.1A reportable occurrences (ORPS) significance categories 1 and 2, and
- Type A or B incidents.

OIA meets with the LBNL Chief Operating Officer monthly and the EH&S Division Director semimonthly to elevate significant concerns and review progress in implementing corrective actions. As appropriate, OIA will also elevate concerns to the Contract Assurance Council. When applicable, functional managers and OIA develop lessons learned for distribution to affected organizations and the Laboratory.

3.2.1 Issues Tracking

Proper management of corrective actions is a multiple step process. These steps include:

1. Issue Identification

The Laboratory identifies, documents, and manages program and performance deficiencies and their associated corrective actions through resolution to prevent the same or similar problems from occurring. Program and performance deficiencies may be identified through employee concerns, internal or external oversight assessment findings, or suggested process improvements.

Sources of findings may include:

- Employee concerns,
- Internal assessments,
- External assessments performed by regulatory agencies, peer reviews, and outside consultants, or
- Suggested process improvements.

LBNL/PUB 5519(1), *Issues Management Program Manual*, outlines the process for issues identification.

2. Issue significance and risk

Identified concerns and deficiencies should be addressed in a timely manner, as appropriate for each issues' significance. Issues are addressed using a graded approach based on the potential risk associated with the condition.

For issues considered high risk or significance, a Corrective Action Plan, a Root Cause Analysis, Extent of Condition and Effectiveness reviews are performed. Interim corrective actions and mitigation measures should be implemented to address immediate concerns. All LBNL employees, contractors, and participating guests are responsible for stopping work activities considered to be an imminent danger per the requirements of PUB-3000, Section 1.5, Stopping Unsafe Work.

LBNL/PUB 5519(1), *Issues Management Program Manual*, outlines the criteria for assigning risk and significance. Based on this guidance, the rigor with which controls are applied to an issue is determined.

3. Corrective action development

Once an issue is identified, corrective action must be developed and implemented to mitigate or remove an issue in order to prevent that issue from recurring. Prevention of recurrence must be considered as corrective actions are developed. Issues should be analyzed for causes on a graded approach. Depending on the significance and potential risk associated with an issue, causal analysis includes:

- Formal root cause analysis performed by trained Laboratory experts.
- Causal analysis performed by internally-trained Laboratory staff.

LBNL/PUB-5519(2), *Root Cause Analysis Program Manual*, outlines the criteria for performing causal analysis.

4. Manage and track corrective actions to resolution

Issues and their associated corrective actions are tracked to resolution in the Corrective Action Tracking System (CATS). In order to manage issues effectively, each issue and associated corrective action, at a minimum, is assigned to a Cognizant Manager, who is ultimately responsible for ensuring that the issue and associated corrective actions are successfully resolved; a Responsible Person, who is assigned to a specific corrective action; and a realistic due date by which the corrective action will be completed.

LBNL/PUB 5519(1), *Issues Management Program Manual*, outlines the requirements for managing and tracking issues and their associated corrective action(s) to resolution.

5. Verification of issue closure

Upon completion of each associated corrective action(s), verification of completion is performed prior to closure. Objective evidence is reviewed to ensure that the associated corrective action(s) is complete and satisfies the corrective action(s) identified.

LBNL/PUB 5519(1), *Issues Management Program Manual*, outlines the requirements and criteria for verification of issue closure.

3.2.2 Data Monitoring and Analysis

Cognizant Managers (CMs) are responsible for ensuring analysis of issues, individually and collectively, in order to identify programmatic or system issues, recurrence of issues, generic issues, trends and vulnerabilities at a lower level before significant problems result. The requirements for trend code assignment, and data collection, analysis, and trending is performed in accordance with LBNL/PUB-5519 (3), *Data Monitoring and Analysis Program Manual*.

3.2.3 Effectiveness Review

Effectiveness reviews are performed to determine whether an identified problem could still result in: 1) a failure to satisfy requirements, 2) incomplete implementation of management systems, or 3) unresolved issues. Effectiveness reviews either provide confidence that corrective actions are effective or identify that the original corrective actions were not adequate or not implemented effectively.

Effectiveness reviews are typically performed on only the most significant issues. A graded approach should be used when conducting an extent of condition review. This graded approach should be based on significance and risk factor.

LBNL/PUB 5519(1), *Issues Management Program Manual*, outlines the requirements and criteria for performance of effectiveness reviews.

3.2.4 Extent of Condition Review

An extent of condition review is performed to identify and correct issues, deficiencies, weaknesses, or problems that persist across the Laboratory (either by location, activity, or program). Extent of condition reviews should be performed using a graded approach based on significance and risk factor.

An extent of condition review is a process by which LBNL can identify the potential for an issue to exist in other activities, processes, programs, organizations, etc. The review determines whether the issue has occurred elsewhere and if the same root or underlying causes of the issue may be affecting performance in other applications.

LBNL/PUB 5519(1), *Issues Management Program Manual*, outlines the requirements and criteria for performance of extent of condition reviews.

3.3 Lessons Learned and Best Practices

The Lawrence Berkeley National Laboratory (LBNL) Lessons Learned and Best Practices Program is designed to ensure ongoing improvement of safety and reliability, prevent the recurrence of significant adverse events/trends, and determine implementation strategies that will help LBNL successfully meet the missions and goals set forth by the Department of Energy (DOE).

The Office of Contract Assurance manages the Lessons Learned Program and maintains the LBNL Lessons Learned and Best Practices Database. The database is designed to allow all Lab staff to enter lessons and best practices they feel are worth communicating to the Laboratory community. Once submitted to the database, entries are reviewed by appropriate subject matter experts and disseminated to Lab staff via targeted email listings. The database also serves as a repository of all LBNL lessons learned and best practices from internal and external sources.

LBNL/PUB 5519(4), *Lessons Learned and Best Practices Program Manual*, outlines the requirements for sharing internal and external operational experience within specific Laboratory organizations, Laboratory-wide, or with other facilities across the DOE complex.

Appendix A

LBNL Conformance with DOE Oversight Policy

Requirements and Standards

The LBNL Assurance Program, as documented in the UC Assurance Plan for LBNL, conforms to all requirements identified in the Contractor Requirements Document (CRD) of DOE Order 226.1, *Department of Energy Oversight Policy*.

DOE O 226.1, Attach. 2 (CRD), Appendix A	UC Assurance Plan
1.a Comprehensive and integrated contractor assurance system established (1) Identify deficiencies and opportunities for improvement (2) Report deficiencies to responsible managers (3) Implement effective corrective actions	Objectives and Applicability Assurance Program Section 2.3, Assessment Section 2.4, Reporting Section 3.2, Corrective Action
1.b Assurance activities must include: (1) assessments (2) incident/ event reporting, including accident investigations (3) worker feedback mechanisms (4) issues management, including causal analysis and corrective action management (5) lessons learned programs, and (6) performance indicators/ measures.	See details below.
1.c Contractor assurance system data must be documented and available to DOE.	Section 2.3, Assessment Section 2.4, Reporting Section 3.2, Corrective Action
1.d. Contractors will establish processes for corporate audits, third-party certifications, or external reviews.	Section 2.3, Assessment

DOE O 226.1, Attach. 2 (CRD), Appendix A	UC Assurance Plan
1.e. Program effectiveness can be certified by third parties as a complement to internal assurance systems.	Third party certification is not required. However, several LBNL functions have achieved third party certifications. These certifications include Earned Value Management System, Environmental Management System, Accreditation Association for Ambulatory Health Care, and DOE Laboratory Accreditation Program accreditation for bioassay and external dosimetry.
1.f. Contractors must monitor and evaluate all work performed under their contracts, including the work of subcontractors.	Objectives and Applicability
2.a Self-assessment is used to evaluate performance. (1) Management self-assessments are performed by contractor management, and are developed based on the nature of the facility/ activity being assessed and the hazards and risks to be controlled. (2) Self-assessments involve workers, supervisors, and managers to encourage identification and resolution of deficiencies at the lowest level practicable (3) Support organizations will perform self-assessments of the performance and the adequacy of their processes (4) Contractor, at all levels, will assess the implementation and adequacy of the processes, including analysis of the collective results of lower-level self-assessments. (5) Self-assessment results will be documented commensurate with the significance of and risks associated with activities being evaluated.	Section 2.3, Assessment Section 2.3.1, Self-Assessment
2.b Internal independent assessments will be performed by contractor organizations. (1) The assessments will be formally planned and scheduled based on the risk, hazards, and the complexity of the areas assessed. (2) Independent evaluators will be appropriately trained and qualified and have knowledge of the areas assessed. (3) Reviewers will be dedicated contractor staff, members of external organizations, or both. (4) Although independent assessments are applied to individual activities and processes, they will	Section 2.3, Assessment Section 2.3.2, Internal Review. Section 2.3.3, External Review

DOE O 226.1, Attach. 2 (CRD), Appendix A	UC Assurance Plan
<p>typically focus on facilities, projects, programs, and management processes used by multiple organizations.</p> <p>(5) Internal independent assessments will concentrate on performance and observation of work activities and the results of process implementation.</p>	
<p>3.a Reportable occurrences that meet occurrence reporting and processing system thresholds and associated corrective actions will be evaluated, documented, and reported as required.</p>	<p>Section 2.4.3, Event Reporting and Analysis</p>
<p>3.b For activities covered by the Price-Anderson Amendments Act, nuclear worker safety and health issues meeting DOE reporting thresholds should be self-reported.</p>	<p>Section 2.4.3, Event Reporting and Analysis</p>
<p>3.c Trending analysis of events, accidents, and injured is performed in accordance with structured/ formal processes.</p>	<p>Section 2.4.3, Event Reporting and Analysis</p>
<p>4. Worker feedback. DOE contractors will establish and implement processes to solicit feedback from workers andork activities.</p>	<p>Section 2.4.4, Worker Feedback</p>

DOE O 226.1, Attach. 2 (CRD), Appendix A	UC Assurance Plan
<p>5.a Program and performance deficiencies, regardless of their source, must be captured in a system or systems that provide for effective analysis, resolution, and tracking. Issues management must include structured processes for:</p> <ul style="list-style-type: none"> (1) Determining risk, significance, and priority; (2) Evaluating the scope and extent of the condition or deficiency; (3) Determining event reportability under applicable requirements; (4) Identifying root causes (applied using a graded approach); (5) Identifying and documenting suitable corrective actions and recurrence controls; (6) Identifying individuals/ organizations responsible for implementing corrective actions; (7) Establishing appropriate milestones for completion of corrective actions, including consideration of significance and risk; (8) Tracking progress toward milestones to ensure timely completion of actions; (9) Verifying that corrective actions are complete; (10) Validating that corrective actions are effectively implemented, using a graded approach; (11) Ensuring that individuals and organizations are accountable for performing their assigned responsibilities. 	<p>Section 3.2, Issues Management</p> <p>Section 3.2.1, Issues Tracking</p> <p>Section 3.2.3, Effectiveness Review</p>
<p>5.b Issues management will provide a process for rapidly determining the impact of identified weaknesses and taking timely action to address conditions of immediate concern.</p>	<p>Section 3.2.1, Corrective Action Tracking</p> <p>Section 3.2.3, Extent of Condition Review</p>
<p>5.c Processes for analyzing deficiencies, individually and collectively, must be established to enable the identification of programmatic or systemic issues. Process products will be used by management to monitor progress and optimize allocation of assessment resources.</p>	<p>Section 3.2.2, Data Monitoring and Analysis</p> <p>Section 3.2.4, Extent of Condition Review</p>
<p>5.d Sites must have an effective process for communicating issues up the management chain to senior management, using a graded approach</p>	<p>Section 3.2.2, Data Monitoring and Analysis</p>

DOE O 226.1, Attach. 2 (CRD), Appendix A	UC Assurance Plan
that considers hazards and risks.	
6. Lessons Learned. Formal programs must be established to communicate lessons learned during work activities, process reviews, and event analyses to potential users and applied to future work activities.	Section 3.3, Lessons Learned and Best Practices
7. Performance Measures. Contractors must identify, monitor, and analyze data measuring the performance of facilities, programs, and organizations. Performance indicator data must be considered in allocating resources, establishing goals, identifying performance trends, identifying potential problems, and applying lessons learned and good practices.	Section 2.2, Performance Metrics Section 2.4.1, Assurance Reports Section 2.4.2, Annual Contract Self-Appraisal Report